List of the current anadromous fish (steelhead, salmon, and sturgeon) projects being conducted by NOAA at the South West Fisheries Science Center.

Date: 13 October 2011

Klamath activities:

Economic Analysis Support for the Klamath Secretarial Determination

1. **Description:** The Economics Team of the SWFSC is co-chairing an economics subteam that is preparing a cost-benefit analysis to inform the DOI's Secretarial Determination regarding the removal of four dams on the Klamath River. The ten-member subteam includes three SWFSC economists (including the co-chair) as well as economists from several DOI agencies.
2. **P.I.**: C. Thomson
3. **Funding source**: Internal (request for travel money from SWR)
4. **Start date**: February 2009
5. **End date**: March 2012
6. **Current status**: Analysis is underway to evaluate the economic costs and benefits of dam removal and the Klamath Basin Restoration Agreement as they relate to (1) ocean commercial, ocean recreational, inriver recreational and tribal fisheries, (2) non-fishing recreation (whitewater, refuge, and reservoir), (3) agriculture, (4) hydropower, and (5) non-use value of Basin restoration. The subteam is also assessing sociocultural effects on six Tribes in the Basin and projecting employment and income impacts on the Basin economy.

Production Modeling Support for the Klamath Secretarial Determination

1) **Description:** The Landscape Ecology Team of the SWFSC is collaborating with the biology subteam in preparing work to support a cost-benefit analysis for four dam removals on the Klamath River mainstem.
2) **P.I.**: S. Lindley
3) **Funding source**: SWR-PRD Arcata (likely redirected from DOI/USFWS)
4) **Start date**: November 2009 (?)
5) **End date**: November 2011
6) **Current status**: Working on two population dynamics (simple and complex) model of fall Chinook, and a habitat-based model for equilibrium abundance and distribution of spring Chinook.

Impacts of Fish Disease on Klamath River Fall-Run Chinook Salmon Population Dynamics

1) **Description**: Construction and analysis of space- and stage-structured models to evaluate the effects of the parasite *Ceratomyxa shasta* on the short- and long-term population dynamics of Klamath River fall-run Chinook salmon.
2) **P.I.**: M. Mohr
3) **Funding source**: SWR-PRD Arcata
4) **Start date**: FY08
5) **End date**: ongoing (permanent)

6) **Current status**: First publication (Transactions of the American Fisheries Society) reports that the impact of *C. shasta* on Klamath River spawning population abundances above the infection zone is detectable. A second manuscript is currently in preparation which investigates the effect of ceratomyxosis on the dynamics of Klamath Basin stocks.

Genetic Population Structure and Stock Identification-Based Estimation of Klamath River Basin Salmonid Contribution in Ocean Fisheries

1) **Description:** As part of the West Coast Salmon Genetic Stock Identification Collaboration, the SWFSC has been analyzing samples from ocean fisheries, both commercial and recreational, to provide a better understanding of ocean distribution and migration patterns for all California Chinook salmon stocks, including the Klamath/Trinity River Basin and California Coastal Chinook salmoni ESU stocks.
2) **P.I.**: C. Garza
3) **Funding source**: Internal, 2006 Klamath Fishery Disaster Funds, 2010 congressional earmark
4) **Start date**: FY10
5) **End date**: FY12, ongoing
6) **Current status**: Approximately 5000 samples were analyzed from fish that were caught in the ocean with exact GPS coordinates of catch associated. Analysis of 2000 sample from recreational fisheries is underway. Planned project for 2011 is lacking funding.

Klamath River Stream Temperature Modeling and Use of Thermal Refugia by Salmonids

1) **Description:** Late summer and early fall water temperature regimes are critical to the persistence of salmon and steelhead populations in the Klamath River. Water temperatures critically influence fish physiology in numerous ways and understanding water temperature dynamics is a prerequisite to assessing acute and chronic thermal impacts on salmonids. The SWFSC is addressing these issues through a combination of a high-resolution stream temperature and fish mortality models of the Klamath River mainstem, and fish tracking studies to evaluate the associated spatial response of salmonids in and around selected thermal refugia.
2) **P.I.:** E. Danner
3) **Funding source**: Pacific States Marine Fisheries Commission
4) **Start date**: Nov 2009
5) **End date**: Nov 2011
6) **Current status**: graduate student has conducted two summers of observations of thermal habitat use by steelhead. River temperature model is being developed from the Sacramento version.

Review of manuscript of upper Klamath Basin historical fish distribution (Myers)

1) **Description:** The SWFSC-FED received a request from SWR-PRD for technical scientific review of a draft manuscript by J. Myers (NWFSC-Seattle).
2) **P.I.**: B. Spence
3) **Funding source**: Internal

4) **Start date**: February 2011
5) **End date**: February 2011
6) **Current status**: Completed

Klamath Chinook salmon BRT

1) **Description:** SWFSC has received notice that the SWR is likely to accept petition to consider the status of Klamath Chinook salmon, in particular, the issues of spring-run and fall-run (currently not considered separate ESUs).
2) **P.I.**: T. Williams
3) **Funding source**: Internal
4) **Start date**: April 2011
5) **End date**: December 2011
6) **Current status**: BRT meeting held 12-13 September, report completion in progresss.

Application of Intergenerational Genetic Tagging for Chinook Salmon at the Trinity River Hatchery

1) **Description:** In collaboration with the Hoopa Valley Tribe and Humboldt State University, the SWFSC has initiated an intergenerational genetic tagging project at the Trinity River Hatchery for both Fall and Spring Chinook salmon.
2) **P.I.**: C. Garza
3) **Funding source**: Internal, SWR-PRD, Hoopa Valley Tribe
4) **Start date**: FY10
5) **End date**: FY11, ongoing thereafter
6) **Current status**: Samples were collected from all fish spawned at the Trinity River Hatchery in 2010 by the Hoopa Valley Tribe. Processing and genotyping will commence when they are received. No funding identified for future analysis of broodstock samples necessary to complete project.

Genetic Broodstock Management of Coho Salmon at Iron Gate Hatchery

1) **Description:** The SWFSC is conducting a genetic analysis of coho salmon hatchery broodstock from 2004-2010 to evaluate inbreeding and family structure in the hatchery fish, as well as genetic differentiation from naturally-spawned stocks.
2) **P.I.**: C. Garza
3) **Funding source**: Internal, SWR-PRD
4) **Start date**: FY10
5) **End date**: FY11
6) **Current status**: An initial round of analyses have been completed and shared with stakeholders (SWR, CDFG, PacificCorp, tribes) in the Klamath Basin. A second round of laboratory and statistical analyses will be completed when the Genetic Assays For Salmonids Project (mentioned elsewhere) is complete later in FY11.